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Original Research

Midwifery students' experiences of problem solving based interprofessional learning: A qualitative study

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ABSTRACT

Background: Interprofessional learning is identified as one of the most innovative ways to encourage students of different disciplines to communicate with each other in interprofessional teams. A review of existing studies identified that inter-professional learning with nursing and midwifery students learning together had not previously been reported.
Aim: This qualitative study sought to explore perceptions and experiences of midwifery students from interprofessional learning with nursing students.
Methods: This study was an exploratory qualitative study employing focus groups. Participants were 30 female students in the fourth year Bachelor of Midwifery at one university in Iran who undertook the surgical training course in midwifery in their seventh semester by inter-professional learning based on problem solving. Data were analysed according to the six steps of the concurrent thematic analysis method.
Findings: One main theme of *challenging approach in learning* emerged and two sub-themes 1) *being challenged in a simulated clinical situation* and 2) demonstrating professional knowledge.
Conclusion: Interprofessional learning by challenging students of various professions during shared interprofessional learning can be followed by positive outcomes such as improved critical thinking, interprofessional communication, teaching–learning motivation and independent learning.

Statement of significance

Issue

A review of existing studies identified that inter-professional learning with nursing and midwifery students together had not previously been reported.

What is already known

Research indicates that students in health care professions have few opportunities to interact with each other and opportunities for interprofessional participation in order to learn from each other. While the need for intreprofessional collaboration in maternity care is acknowledged.

What this paper adds

Insight into how experiences of midwifery students from shared interprofessional learning with nursing students challenged students in learning with positive outcomes such as incentive for teaching–learning, improved interprofessional communication, development of learning and critical thinking and reduced theory-practice gap promoting them to become self-directed learners.

1. Introduction

In the twenty-first century, it is expected that educated people have strong problem solving skills to work in complex situations. This goal is achievable through changing traditional teaching strategies.[1] Traditional verbal lecture delivery is the most common method of training used in medical education, relying on one-way teacher communication during the education process where the learner only has a passive participant role. Therefore, it is important to review traditional methods of learning, towards more learner-centered, active and innovative education methods.[2,3] It is reported

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that learner-centered methods are effective in improving communication skills, teamwork, problem solving, responsibility of learning, sharing information and respect for others.[4] Problem solving using case studies is one learner-centered educational strategy that has attracted attention in recent decades. This method encourages students to gain awareness of their own knowledge and skills and applying this in new situations. Learners discover new methods to solve problems through integration of their prior knowledge.[5] Learning methods based on problem solving provide opportunities to develop interpersonal skills, teamwork and group work. Students are encouraged to use prior knowledge for care management in simulated situations.[6]

2. Literature review

Today, health care institutions need caring professionals with extensive expertise in quality patient-centered care. Inter-professional learning (IPL) is proposed as a means to achieve this goal.[7] Traditional academic learning does not promote students' interactions with other health care professions. During clinical education, there are very few opportunities for students to interact with other health professionals and this could inhibit professional socialisation. IPL has been defined by Reeves et al.[8] as situations where two or more healthcare providers from different disciplines learn together, from each other and about each other to improve participation and quality of care.[9] It has been defined as a creative educational approach that includes interactive learning between different professions with the aim of strengthening partnerships. Hence, it encourages students from different disciplines to communicate in interprofessional teams, study together and to actively solve problems. Therefore, it prepares them for future clinical practice and helps to shape desirable interprofessional communication through respect for each other's roles.[6]

IPL as an educational strategy has attracted international interest for increasing teamwork, improving communication and breaking down interprofessional barriers.[9] Studies conducted in various countries have examined interprofessional learning among different students in clinical environments. These studies have demonstrated students' satisfaction and positive outcomes from learning experiences, enhancement of their understanding about other professions by familiarisation with their roles, changing attitudes and behaviour towards interprofessional partnerships and improvement in quality of person-centered care.[7,10,11]

Studies have demonstrated that students' attitudes toward, and understanding of, interprofessional partnerships and decision making can be improved through interprofessional learning.[12] Effective learning opportunities in small interdisciplinary interactive groups have been identified as effective methods of learning and teaching.[13] Based on research findings, IPL has increasing capacity for knowledge development and integration of new learning methods along with encouraging interprofessional communication. In IPL, curriculum content can be offered broadly. Therefore, students of related professions can participate. In addition, using interactive learning methods, not only demonstrates the power of this approach, but also a basic principle of IPL. Focusing on the perspectives of others in interactive learning is strengthened and learners can use each other's knowledge.

IPL offers a method for using learning based on problem solving, and the goals of problem-based learning (PBL) and interprofessional learning can be achieved simultaneously. King[14] also suggested that learning through working with other health care students provides opportunities for expressing themselves professionally. Research indicates that students in health care professions have few opportunities to interact with each other and opportunities for interprofessional participation in order to learn from each other. While the need for intreprofessional collaboration in maternity care is acknowledged,[15–17] literature on IPL with midwifery students is scant. In Australia, Netherwood and Derham[18] reported on one study that involved interprofessional peer-assisted learning whereby midwifery students taught paramedic students about normal birth. These authors reported that the experience resulted in new respect for each other's disciplines and their different roles in birthing.[18] In the UK, Netherwood and Derham reported on an interprofessional study involving undergraduate nursing midwifery and complementary and alternative medicine (CAM) students. They also found that the IPL enhanced understandings and perceptions of each others' roles and served to break down existing prejudices and stereotypical views.[19]

IPL based on problem solving is a new learning technique that has been used in the Faculty of Nursing at Shahrekord University of Medical Sciences for clinical education of medical-surgical care to midwifery and nursing students in final year of their study. Students from these two disciplines in their final academic year undertaking learning in medical-surgical care participate together in problem solving rounds conducted in the hospital setting. Simulations were developed by clinical teachers with medical-surgical nursing expertise. Their goal was to design scenarios that routinely occur in practice and they encountered with them in their clinical education. In these rounds, simulated scenarios based on real patients are discussed to identify and prioritise womens' health problems. By goal setting, appropriate interventions are designed to address these problems. In this qualitative study, the experiences of midwifery students participating in this educational method were explored.

2.1. Participants and methods

A qualitative study was conducted using focus group interviews.[20] The study sought to examine midwifery students' perceptions and experiences of participating in the IPL learning with nursing students. Participants included 30 female students in the fourth year of the Bachelor of Midwifery from September to December 2013 at Shahrekord University of Medical Sciences, Iran. They undertook the training course in their seventh semester on surgical care in midwifery by using an IPL learning method based on PBL. Approval to conduct the study was obtained from the ethical committee at Shahrekord University of Medical Sciences.

Potential participants were identified using purposeful sampling. After the study was explained to students by a researcher not directly involved in their program, they were invited to participate. Informed and written consent was obtained from all participants prior to commencement. Focus group interviews involved five groups of 6–8 students in a faculty meeting room. Each interview lasted between 40 and 90 min. Guiding questions were as follows:

- Please talk about your experiences of completing the medical-surgical training course in midwifery by using IPL with PBL.
- What were the advantages of this method based on your experience?
- What were the disadvantages of this method based on your experience?

Probing questions were asked based on responses to the main questions in order to better understand their experiences. The interviewer was a female faculty member with a doctoral degree in nursing. She was familiar with qualitative research methods and also in teaching the medical-surgical field in midwifery. She had theoretical classes and clinical training with the participating students in the study in the past semester, but at the time of collecting the interview data, she did not have classes or training with any participant and did not participate in the IPL experience. Participants were assured that their personal information and

recorded materials would be kept confidential, and participants would remain anonymous in any publications resulting from the study.

2.1.1. The IPL problem solving method

Students in the final academic year of nursing and midwifery who were attending the surgical training course participated in rounds of problem solving based IPL. Within one month of completing, 13 midwifery and six nursing students who passed the internal surgical training in the same month participated in the related classes accompanied by one of the masters of internal surgery. There were four rounds consisting of two hours per month. During these rounds, real women with medical problems or surgery during pregnancy or obstetric and gynecologic surgery were discussed between the students of both disciplines in a classroom context. For example, one scenario involved a 29-year-old pregnant women in 28 weeks of gestational age who presented to the emergency prenatal unit with acute abdominal pain. The midwifery students should determine the cause of the event based on their detailed assessment and the appropriate interventions.

Students did not know which disease scenario would be discussed in each round. The students of the two disciplines were required to actively participate to identify problems, prioritise problems, goal setting and appropriate interventions for identified problems. Then, presented ideas were discussed.

Data were analysed using thematic analysis conducted through five phases.[20] In the first phase, the author transcribed the data and took notes and marked ideas for coding. The next phases of analysis have been done by the author and one of nursing colleagues (M.T). The second phase involved producing initial codes from the data by identifying interesting aspects in data items that might form the basis of repeated patterns (themes) across the data set. The third phase involved sorting the different codes into potential themes and collating the relevant coded data extracts within identified themes. In the fourth phase, we read all the collated extracts for each theme and considered whether they appeared to form a coherent pattern. Then, we considered the validity of the individual themes in relation to the dataset and whether our candidate thematic map "accurately" reflected the meanings evident in the dataset as a whole. In the fifth phase, we defined and further refined the themes.[20]

Participant recruitment, data collection, and analysis continued until data saturation occurred and a rich description of experiences was obtained. The data collection ceased after five focus group interviews, as after four focus group interviews it was clear that no new concepts had emerged. Confirmability, credibility, dependability and transferability were used to assure various aspects of trustworthiness according to Spiers et al.[21] For confirmability, the bracketing process put aside researchers' assumptions and biases before data collection. To assure credibility, we used peer debriefing or reviewing of data, codes and themes by a co-researcher, and member checking of findings by research participants as member-checking was undertaken with one participant from each focus group. This was done with initial themes emerging from the data rather than the actual transcripts to increase the validity of the analyses. Focusing on the research objectives and trying to question the same areas for all the participants were used by researchers during the study to assure dependability. Nevertheless, generalisability is not a claim nor a primary concern of qualitative research.

2.2. Findings

From the analysis one major theme emerged of *challenging approach to learning* and two sub-themes including: 1) *being challenged in a simulated clinical setting* and 2) demonstrating professional knowledge.

2.2.1. Being challenged in a simulated clinical situation

Participants' experiences showed that the IPL method based on problem solving had placed them in a simulated clinical situation. One of the features of the IPL method based on problem solving was lack of student knowledge about the disease being discussed at each training session. Participants stated that being faced unexpectedly with the woman presented in the training sessions imitated the real situation in the clinical environment. Therefore, it was a good method for practicing to be faced with, and also management, in the real clinical environment in the future. This issue made students face real challenges in order to solve the problem, and care management that made learning process attractive.

> *It was a great experience, a case was raised and the diagnosing was our responsibility. It was the same as if a patient has come for you and you were forced to diagnose . . . it puts you in a real situation. (Student 3, Focus group 5)*
>
> *We should be able to diagnose the disease, already without knowing which disease is going to be faced. In my opinion, as a surprise, it will be better and we learn more in real environments, how to solve the patient's problem. Hence, when the students were involved, it was pretty good. (Student 1, Focus group 1)*

Based on students' experiences, one of the distinctions of IPL based on problem solving was students of the two disciplines challenging each other to resolve the presenting problem and simulate care management. This case was considered as one of the strengths of this method.

> *For example, an issue was common for us, and does not make any questions. However, in these sessions, when we asked a question from nurses, they told us about our errors and said: now if something else would happen, what do you do? For example, there was a sick pregnant woman with pulmonary embolism. We wanted to make a NST (Non Stress Test) to understand the possible harm to the fetus. After that, they said: if she has twins or more, what do we do? We have not had this experience at the bedside and we did not know what we should do. (Student 2, Focus group 2)*

By encountering students with the simulated problem-based scenarios, their prior knowledge was challenged in care management so they identified strengths and weaknesses of their own knowledge. This issue created concern among students regarding lack of ability to manage women similar to real clinical situations, increased motivation for interprofessional learning and exchanging information with other students.

> *We found that we did not know a lot of things. When in the class, we were questioned or we had questions for ourselves, then, we were able to figure out our weaknesses. So we tried to read that topic after the class or we went looking for the correct answer to learn from textbooks or my friend that she was better than me and it was a motivation for us. (Student 3, Focus group 2)*

However, the students' experiences were indicative of their improved performance in the teaching–learning process by passing the training sessions. Working in an interprofessional team for managing the simulated problem helped the midwifery students recognise abilities of nursing students in presenting information, assisting to manage the women's problems and using them as a source to increase their knowledge.

> *For example, in the first session, I gave the wrong answer to manage the DVT problem of the patient. But I saw that the nursing students explained completely and clearly. They explained all types to me. For this reason, in the second session, I tried to not allow*

something to be kept in my mind, I told them and they have solved my problem. I found trust that they can answer. (Student 5, Focus group 4)

Participation in the teaching–learning process during IPL problem-solving sessions and exchange of mutual information between students to overcome learning deficiencies and manage simulated clients would likely cause long-lasting learning.

Especially, if there's a case to be held and anyone can say his/her opinion and interact with each other has much influence to consolidation of information. When you engage in learning, for sure, the data will remain in the mind a lot better. (Student 3, Focus group 3)

In students' experiences, the problem solving learning method was characterised as a strength of this method of learning. This technique made students attempt to use their prior theoretical knowledge in order to solve problems of simulated cases. This issue reduced the theory-practice gap and enhanced their ability in managing similar situations in real clinical settings.

In theoretical classes, we've just read and read and learned only theoretically. But now, in facing a new case, we try to diagnose it. It was really clinical and not theoretical. In the real clinical setting, you should use your theories to manage the patients. Now you have to use your prior knowledge to decide what action should be done, and it is a pretty good advantage of these classes. (Student 4, Focus group 2)

Based on participants' experiences, existence of an interprofessional team made students become familiar with the knowledge of nursing professionals. Interprofessional information exchange expanded students' learning and, in addition, facilitated interprofessional communication.

They (nursing students) knew more about the cases related to all of the patients. Therefore, in addition to those things that we knew, we've learned about other cases. Now it is easier for us to accept that they (nursing students) know something more than us and we know something more than them. Therefore, it has been easier to ask questions. Our interpersonal communication has been increased. (Student 4, Focus group 1)

Development of critical thinking was a major outcome of this method of learning, which was repeated in all participants' experiences. Participating in a simulated clinical setting and challenging each other in order to solve problems confronted learners with hidden aspects of the diseases. It helped them think more critically about actual and potential problems in the women's health and led to self-directed learning for students.

This will make me see other aspects of this case, which I've ever seen up to now . . . we went looking for answers. This would cause us to look at a case with very attention. We used to think to all possible scenarios or all possible problems for this case. (Student 3, Focus group 4)

Our look to clinical material was changed. At the moment, I study the pregnancy and childbirth issues, or any other courses, an image of a patient comes to my mind . . . now what should I do? What should I prescribe for a case? (Student 5, Focus group 3)

All participants were highly satisfied with the course and suggested these courses continue for other midwifery students. "*If it is continuous, it's very good . . . .Please be sure to continue the process.*"

2.2.2. Demonstrating professional knowledge

The second emergent sub-theme was *demonstrating professional knowledge*. Its initial codes included trying to prove their scientific profession, self-satisfaction and fluctuations in self-confidence. Experiences of participants in the interprofessional learning showed that they were trying to prove superior knowledge of their profession compared with the nursing profession in a positive way. It means that by answering the nursing questions, the midwifery students tried to show their profession has a strong knowledge base able them solve the patient's problem in the obstetric area. In addition, each midwifery student tried to show superiority of own information compared with other students in her disciplineas midwifery students tried to, by effort and participation in class discussions, demonstrate they were able to respond to nursing students' questions and manage women's problems. This was important for midwifery students to increase their motivation for studying outside the classroom and was followed by interprofessional competition and attractiveness of learning.

Sense of competition is a sense of excellence, because we want to show our discipline. (Student 6, Focus group 2)

They had also wrong answers about certain things in midwifery. We said that you made a mistake, because these cases actually were places that we wanted to show ourselves . . . It created competition between ourselves in the class. We wanted to see whose diagnosis is more correct. It was really a good feeling. (Student 6, Focus group 1)

Spirit of demonstrating professional knowledge of students caused them to experience fluctuations in self-confidence for correct responses to questions and success in managing women, confidence strengthening, having sense of self-satisfaction and vice versa to experience decreased confidence in facing their lack of knowledge and capacity to manage the women.

Confidence was increased when you could answer and show that you are able to manage the problem. The one that was not able to answer, on the contrary her self-confidence would be decreased. (Student 3, Foucus group 2)

Students in interprofessional teams tried to demonstrate their knowledge and ability to manage simulated cases. Therefore, providing the opportunity to build their confidence in management of women's problems during these sessions was discussed as an advantage of this method, which was not available in other classes.

In comparing with them, we knew more than them in some aspects. Therefore, we insisted to give an answer, even with a few words. However, in front of the professor, we do not ever say those few words. These classes created a sense of self-belief for the expression of information. (Student 4, Focus group 4)

3. Discussion

This study explored midwifery students' learning experiences during sessions of IPL based on problem solving. It was identified that participants had positive experiences from this method. The process included two main elements of "learning the techniques of problem solving" and "inter-professional learning". According to students' viewpoints, one of the strengths of the method was learning based on problem solving to challenge them in a simulated clinical situation. In their expression of positive experiences from learning by this method, students described effective learning consequences through similarity of proposed scenarios with actual and real clinical situations, challenging prior knowledge, identifying weaknesses and strengths of knowledge and anxiety in facing lack of knowledge. Moreover, increasing motivation for teaching–learning, learning through training by the peer group, learning survival, decreasing theory–practice gap, developing critical thinking and self-directed learning were additional learning outcomes based on the participant's experiences. These issues led to satisfaction from participating and

interest in this method of collaborative learning. This theme was similar to the concept of "valuation for learning based on problem solving" revealed in a study by Salamonson et al.[22] with nursing students in Canada. Central processes of valuation of PBL in that study were elements such as accountability versus learning and motivation. Such experiences of PBL methods have been seen widely and reflect processes and cognitive development of students from inactivated dependence to self-directed independence.[23,24]

Using the PBL method in the present study resulted in useful and enjoyable learning experiences due to the collaborative nature of learning, challenging students to resolve problems and practise applying theoretical knowledge to manage women at the bedside. Salamonson et al.[22] also reported a range of benefits of learning based on problem solving such as understanding and appreciation of method, high satisfaction due to consistency of this method with their interests to self-directed and proactive collaborative learning, learning searching techniques, using information in real-life situations and joy of being challenged during learning. Papinczak in Jordan also reported advantages regarding experiences of nursing students from PBL methods such as development of critical thinking, increasing use of prior knowledge for care management outside the classroom and independent learning, facing with individual knowledge challenges, charismatic, dynamic and viability of learning and learning from comments of other students.[23] Studies by Schmidt et al. with nursing students in Macao,[25] Postholm with medical students in The Netherlands,[26] Hung with masters degree students in Norway,[27] Murphy et al. in U.S.A,[28] Khoo with nursing students in Ireland[29] and Niemer et al. with Asian medical students in Singapore[30] reported similar experiences such as increasing students' enthusiasm towards desired subjects, increasing motivation to learn, become self-directed learners, ability to merge and apply knowledge, clinical reasoning, interprofessional communication, decision-making and encouraging students to engage in problem solving.

Other studies have also shown that PBL approaches can lead to enhanced motivation, self-directed learning, lifelong learning, applying knowledge in clinical settings, increasing problem-solving skills, clinical reasoning, expanding critical deep thinking in preparation for being professional and ethical nurses in the future.[31–33] These items were consistent with our findings. According to Benner et al., a problem solving approach could be challenging for all those who were involved.[33] For example, involving teachers to identify realities of clinical practice and reflect them in educational curriculum caused nursing students to be engaged in independent learning in order to solve problems and look for them in their clinical practice. Frambach et al. suggested that nursing managers were demanding radical change to educational curricula for clinical courses. They believed that students should be encouraged to engage actively in real scenarios in order to be able to use their knowledge to understand care situations, identify health problems, prioritise nursing interventions and have effective communication with individuals and their caregivers.[34]

The second element used in the present study was IPL. Students expressed characteristics of IPL as strengths of this approach including challenges for both disciplines' students by in solving problems together and simulated care management. These aspects created opportunities to express themselves in front of the nursing students, promote development of professional identity, better understand knowledge of the nursing profession, motivate interprofessional teaching–learning enhancement, expand the scope of student learning, facilitate scientific exchanges in the clinical setting and finally, lead to positive student attitudes towards learning about IPL and desire to continue this method. Liaw et al., in a study with medical students in The Netherlands, also reported that features such as competitiveness, struggling and striving for success and desire to be the best were factors that caused students to be more eager to try to think and be the best among their friends, rather than in having intrinsic motivation for learning.[35] The opportunity to express themselves and strengthen confidence was among the present study's findings, which were consistent with findings of previous studies with medical students and other disciplines. For example, Hood et al.'s study in Singapore on experiences of nursing and medical students demonstrated that IPL increased students' confidence and enhanced inter-professional communication.[36] Carey et al.'s study of experiences from inter-professional learning methods in different groups of medical students in Australia demonstrated that students who participated in interprofessional learning had more positive attitudes, teamwork partnerships as well as professional identity.[37] King also expressed that learning through working with other students provided opportunities for students to place themselves in health care teams and to express themselves.[14] Among the important findings in this study were improvement of students' interpersonal and inter-professional communication and positive attitudes compared with the nursing profession during the sessions and after attending interprofessional learning sessions based on PBL. The results of other studies have reported similar outcomes. For example, Priddis and Wells the United Kingdom,[38] and Anderson et al. in Australia[39] also showed that interprofessional learning improved interprofessional communication skills and team participation. Other studies on IPL between students of different disciplines have also reported enhanced joy of learning,[40] improved confidence,[41] attitudes about teamwork and positive attitudes about interprofessional learning,[42] more learning out of academic subjects,[43] greater understanding of another's profession[18] and improvement of interprofessional communication.[44]

There are limitations to this current study. Firstly, it was conducted in one university in Iran. While findings are not generalisable, they contribute to an emerging body of knowledge in midwifery education. Second, the context of the study involved one mutual aspect of learning across the two disciplines. There is a need to identify and develop further opportunities within both curricula to develop ongoing opportunities to foster collaborative relationships between the two disciplines. More research is needed to examine the impact of these types of learning experiences on subsequent clinical practice following graduation.

However, despite these limitations, our experiences suggest that use of existing student buy-in and expertise and engage clinical teachers might help the implementation of IPE be more successful for nursing and midwifery schools interested in engaging students of both disciplines in interprofessional learning outside regular classroom hours, In addition, determine an appropriate time for student schedules in the curricula and motivating clinical teachers about the importance of interprofessional learning are important system level approaches to improving the quality of interprofessional learning because clinical teachers serve as important resources, as they can merge interprofessional learning in clinical learning by developing simulation events; they also can increase student participation by motivating them attendance at the interprofessional learnig event as part of their course requirements or an extra credit assignment.

4. Conclusion

Little has been previously written about IPL between nursing and midwifery students. Experiences of midwifery students from shared interprofessional learning with nursing students challenged students in learning with positive outcomes such as incentive for teaching–learning, improved interprofessional

communication, development of learning and critical thinking and reduced theory–practice gap promoting them to become self-directed learners. In order to promote interprofessional collaboration between nursing and midwifery students and clinicians, more opportunities for IPL involving these groups need to be developed and evaluated.

Conflict of interest

The author declares no conflict of interest.

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